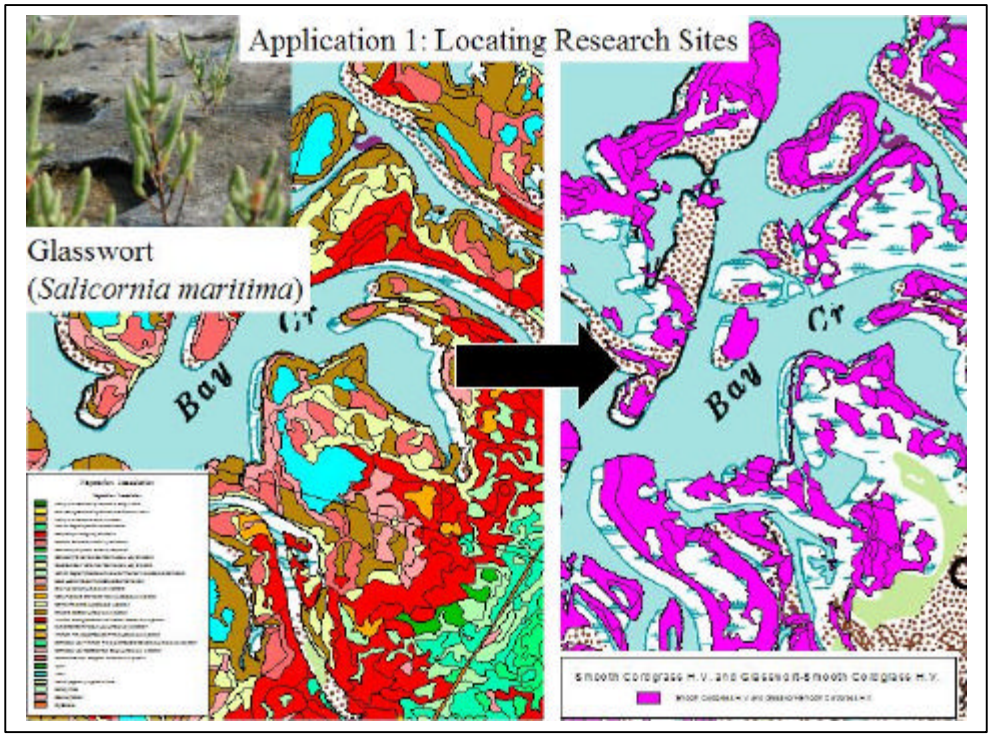
Success Stories

RESOURCE MANAGEMENT OPERATIONS USES OF PARK VEGETATION MAP AT ASSATEAGUE ISLAND NATIONAL SEASHORE

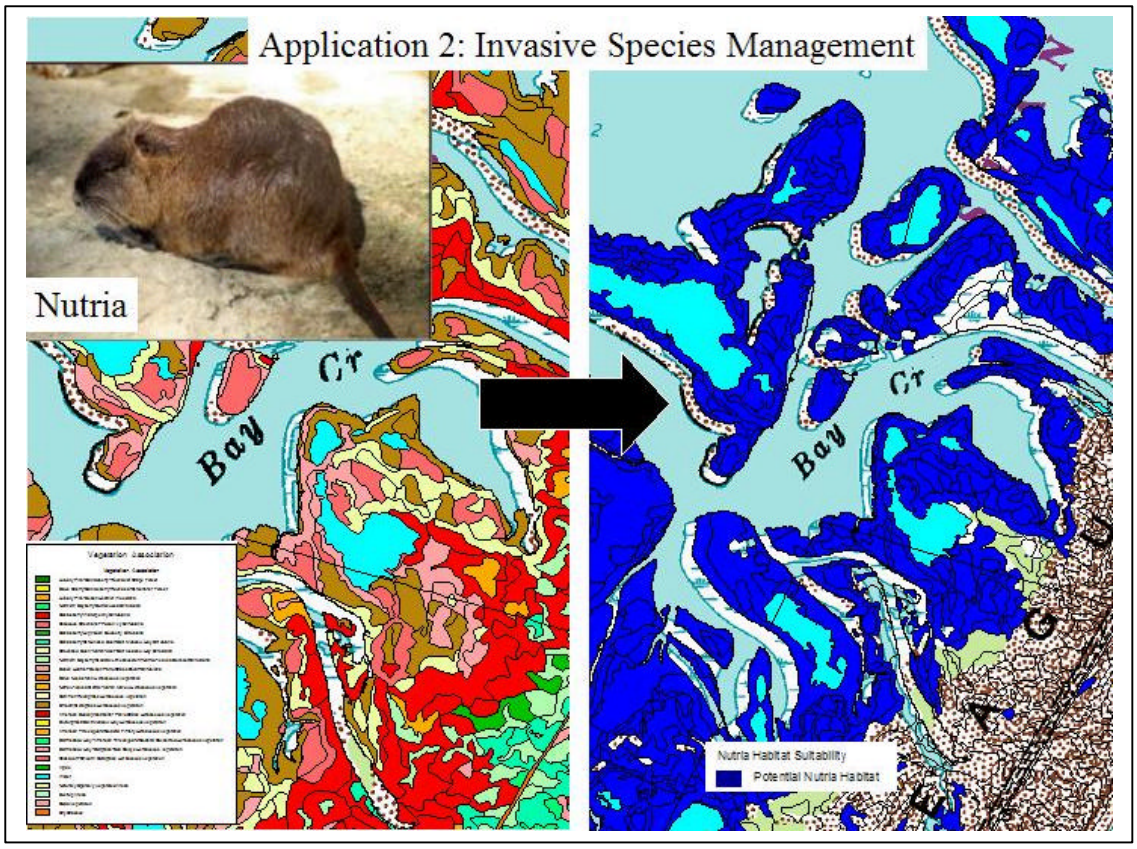
By Chris Lea

Since completion of its pilot vegetation map (1999), Assateague Island National Seashore has used mapped information to solve a number of park resource management operational problems.

1. An ecologist from Horn Point Laboratory (University of Maryland) was conducting research of solar ultraviolet radiation on a purported sensitive genus of plants, the glassworts (*Salicornia* spp.), which are common in salt marsh habitat at Assateague. She wanted to find several research sites that were favorable (e.g., where glassworts were common, access was favorable, sites were distant from one another). From the descriptions of vegetation associations and knowledge, park staff determined that two vegetation associations had glassworts as a common component. The two mapping units comprising these associations in the Assateague vegetation theme were merged to create a map of likely glasswort habitat. By adding other pertinent themes (e.g., roads), park staff were able to produce a map quickly for the investigator. The map allowed her to plan her research more systematically and effectively, rather than to rely completely on anecdotal advice from park staff.

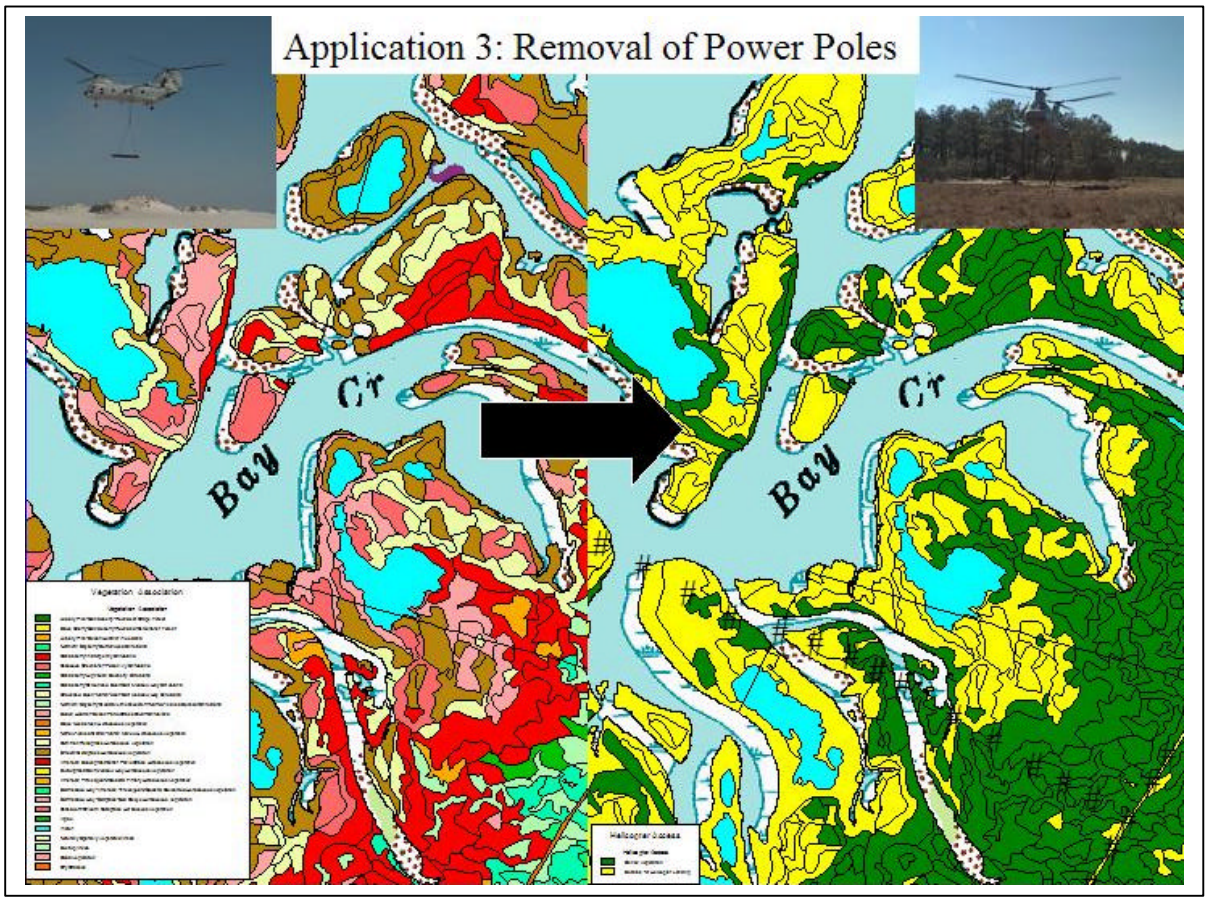


2. Signs of nutria (*Myocastor coypus*), an invasive South American rodent that has eliminated salt marsh vegetation on an extensive scale where it has become established in Maryland, were discovered on Assateague Island. Because effective management is feasible in the early stages of invasion, park staff determined that contracting professional trappers to locate and trap nutria while population numbers were low was needed to protect island salt marshes. Since nutria numbers were presumed to be low and populations well dispersed, a systematic search of all potential nutria habitat was to be a priority for the trappers. Mapping units representing vegetation associations determined to be favorable to nutria were merged to create a nutria habitat map, and the trappers were directed to thoroughly and systematically search these mapped areas.



3. Nearly 400 power line poles on Assateague Island that had formerly serviced buildings occupied by retentioners came into disuse with the expiration of the retentions. The poles were highly visible from both high use recreational areas and backcountry, and the National Park Service planned to remove them to reduce the intrusion on island scenery. While many could be removed by heavy equipment from a formerly disturbed and hardened road trace, about 15% were in relatively

undisturbed vegetation that would be more heavily impacted by this method of removal. A U.S. Marine reserve unit was engaged to remove these remote poles by helicopter from backcountry staging areas. Some of the poles were in low herbaceous vegetation in which helicopter access was possible, while others were in denser vegetation (shrublands, forests) and would require overland access and dragging on foot by the soldiers. By merging vegetation associations into physiognomic classes where helicopter access was or was not feasible, park staff created a tactical planning map used by both park staff and the military commanders.



4. A graduate student conducting dissertation research on winter foraging of yellow-rumped warblers (*Dendroica coronata*) at Assateague needed to locate research for sites in which wax myrtle (*Morella cerifera*), a major winter food source for the warblers, was common. A similar merging of vegetation associations into a theme of forests and shrublands in which candleberry was a major component of the vegetation was used to produce a potential habitat map for the warblers.

5. In an informal consultation process, Assateague Island National Seashore engaged in a short term monitoring program to determine possible effects of the sediment restoration program to be conducted by the U.S. Army Corps of Engineers on the north end. Possible effects on the federally listed piping plover (*Charadrius melodus*) and seabeach amaranth (*Amaranthus pumilus*) were of foremost concern. Project cooperators (National Park Service, U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, Maryland Department of Natural Resources) determined that habitat monitoring, in addition to population monitoring, was needed to more clearly assess possible causes and effects between the project and the population numbers of the listed species. The vegetation classification developed for the park vegetation mapping project was used as a response variable that integrated habitat factors in a manner that was both more interpretable and less variable than would any plant species indicator.

Beyond the obvious practical benefits that a vegetation map provided to these park operations, two additional points from these examples are worth noting.

A diverse group of cooperators (researchers, contractors, military, other resource management agencies) has been impressed by the ability of the National Park Service to merge sound scientific inventory information with adaptive and creative management to produce maps as tactical planning tools.

The highly detailed floristic information produced contained in vegetation classifications and maps produced for National Park Service areas by the Vegetation Mapping Program allows for more flexibility and creativity in applying the map to solve park problems. Classes of vegetation can be grouped in large numbers of combinations to produce maps specific to applications.

THE USE OF SHORELINE MONITORING DATA AND GIS TO ASSIST IN FACILITY MANAGEMENT ASSATEAGUE ISLAND NATIONAL SEASHORE

By Mark Duffy

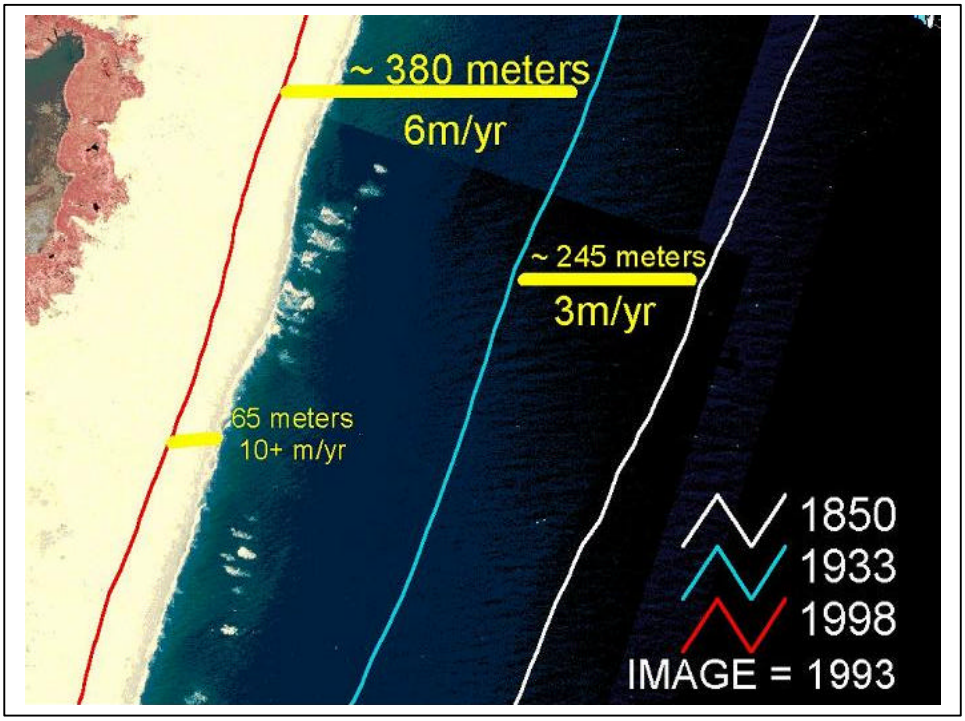
Assateague Island National Seashore (ASIS) operates a recreational swimming and interpretive program within the Chincoteague National Wildlife Refuge (CNWR). The operation consists of a visitor center, lifeguard facilities, restrooms and bath-houses, and beach parking lots and access roads. These facilities are located on a very narrow stretch of southern Assateague Island and as such are subject to frequent severe damage due to storm related overwash events. Historically, the park has repaired or replaced these facilities on a regular basis including moving them to more landward locations. Over the years, these restoration/relocation activities have resulted in considerable expense to the park.

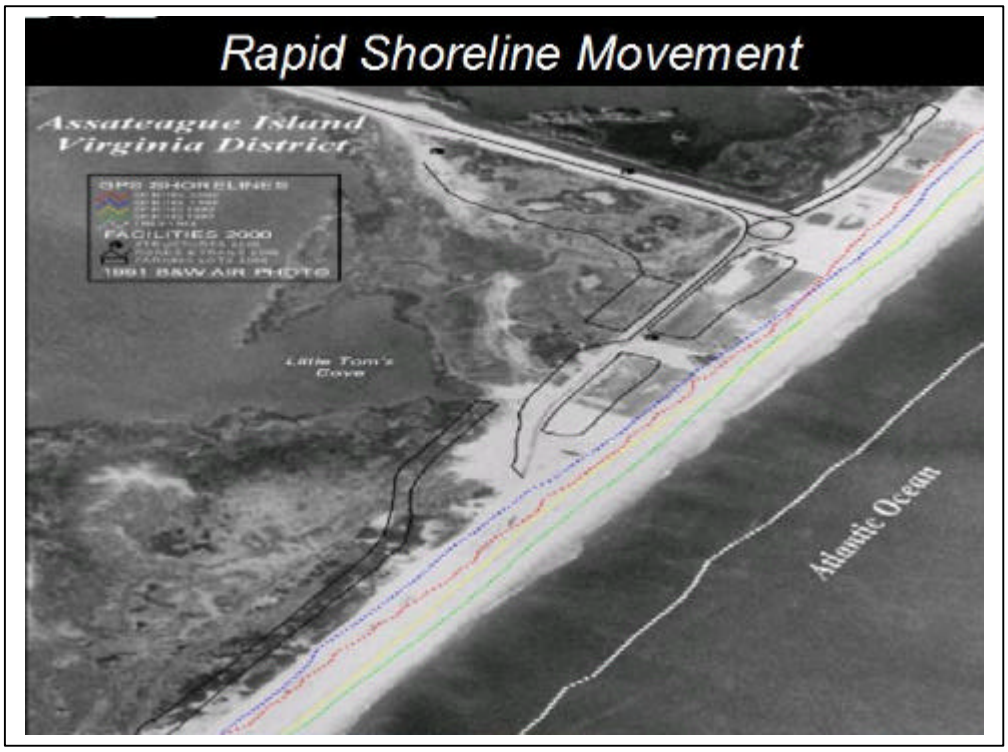
Over the past few years, the park has developed and implemented a sustainable design project to replace the old infrastructure with portable facilities. The object of this project was to recognize the reality of the barrier island dynamic in design and building activity. Instead of "permanent" structures such as wooden buildings and paved roads, the park would install portable facilities that could be easily removed or relocated as the island responded to storms and "normal" landward migration. These features included separate structures for restrooms, changing rooms, and shower towers. Asphalt roads would be replaced with clam and oyster shell surfaces with the shells provided by the local shellfish industry.

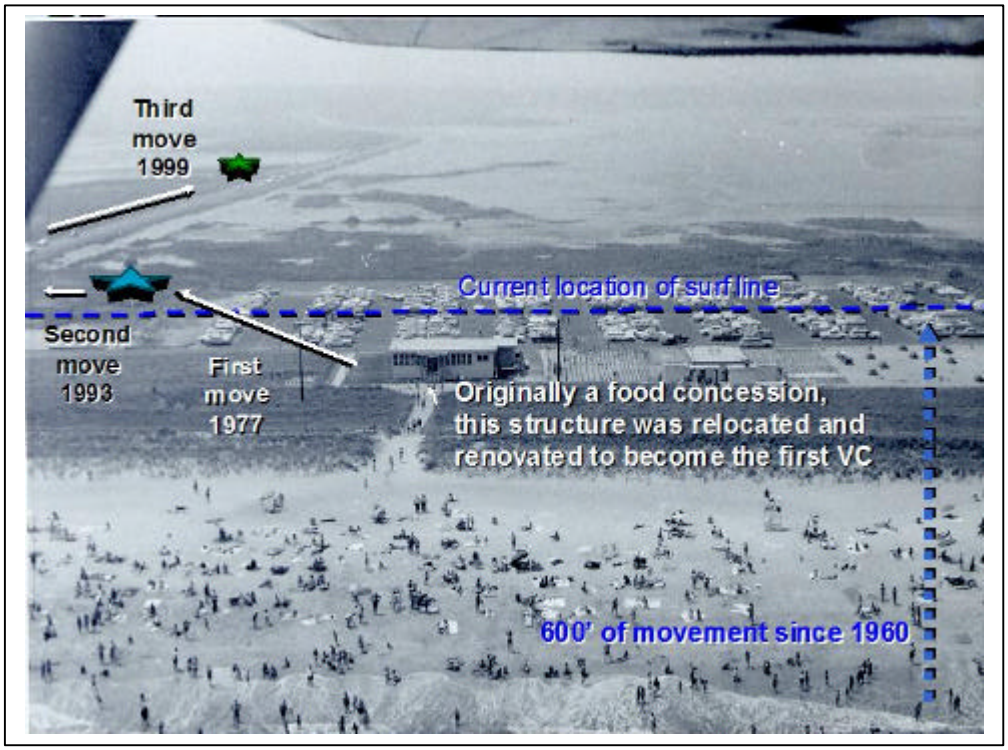
A major hurdle in the plan was the reluctance of local government and business to accept the change to the new portable system. Assateague Island is the only accessible ocean beach in the area and a major tourist attraction for the town of Chincoteague, VA. Local politicians and business interests were very hesitant to embrace any change that could affect the status quo vis a vis beach access and visitation. Before the sustainable plan could be advanced, park management would need to convince the local leaders that the plan was necessary and feasible.

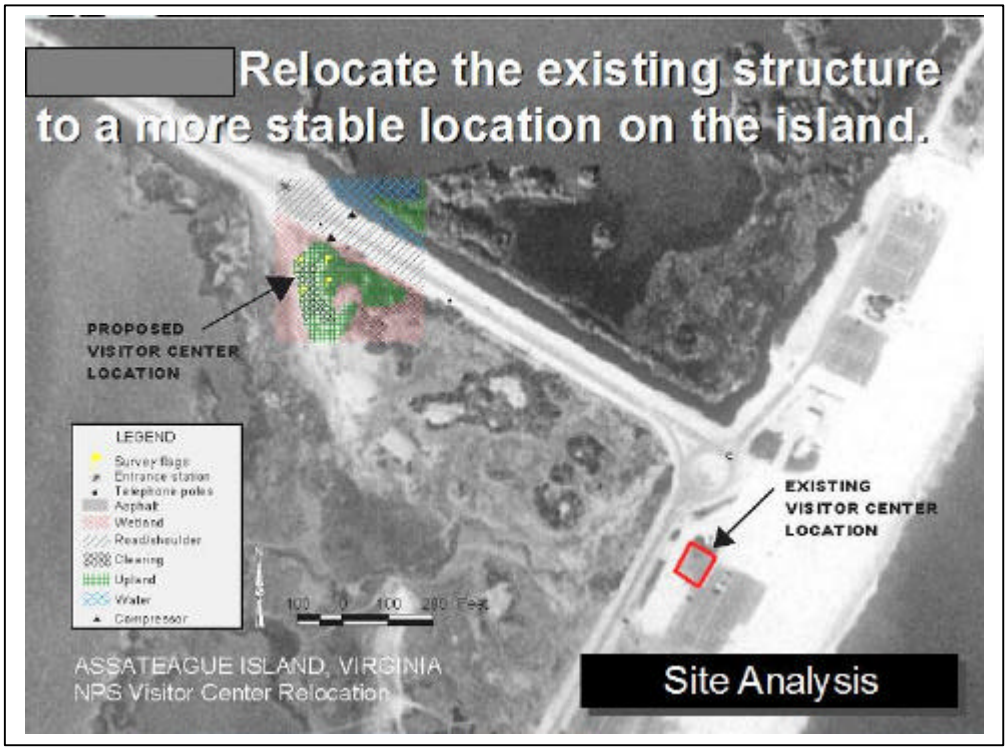
Historic and recent shoreline data played a major role in demonstrating the necessity of the project. Using both vertical and oblique aerial photos and overlaying several years of shoreline data, park management was able to visibly demonstrate the highly dynamic nature of the recreational beach area. Showing the areal extent of the horizontal shoreline change over time allowed the park to support its argument for both relocation

and portability. Once the need to move was established, the park was able to convince local residents that the sustainable design concept would not negatively affect beach tourism; but rather allow the park to maintain high quality facilities without the downtime encountered by constantly rebuilding.




Rapid Shoreline Movement
Assateague Island
Virginia District
FACILITIES 2000
1991 B&W AIR PHOTO
Little Tom's Cove
Atlantic Ocean


Third move 1999
Second move 1993
First move 1977
Current location of surfline
Originally a food concession, this structure was relocated and renovated to become the first VC
600' of movement since 1960



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